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The human factor in gadget, Web design

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Wonder why YouTube skyrocketed in popularity in less than two years?

One obvious reason is that [the video-sharing Web site has kept it simple](#). YouTube doesn't require a video player download or a special account just to watch a video. With just a click on a link, a video is up and running in a few seconds. It's a people-friendly design, and that attention to simplicity has paid off.



Experts in the field of so-called human-computer interaction, however, say good design like the YouTube interface is the exception, not the rule. For every [slick Apple iPod](#), there are a dozen washing machines with a baffling array of buttons. And for every simple TiVo interface, there are umpteen TV remote controls that look like something out of NASA's Mission Control.

Now companies, universities and even government agencies like NASA are investing time and dollars as they take a hard look at how people interact with technology.

“Design is starting to change who succeeds and who fails,” said [Alonso Vera, a senior research scientist](#) at NASA Ames Research Center who's also a senior systems scientist at Carnegie Mellon University. “A few years ago that wasn't true. If I had a better algorithm, I would win,” he said.

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[Jakob Nielsen](#), a [usability expert](#) and partner in the design consulting firm the Nielsen Norman Group, said when he started in the field in 1983, he had only a few hundred peers around the world--all considered “weirdos,” he joked. Now, there are several thousands experts, and he’s constantly meeting new specialists at major corporations.

Not surprisingly, high-tech companies are bringing in human-computer interaction experts as well. Google has a team of about 50 and regularly hires students out of CMU’s human-computer interaction department. And there are growing teams at Intuit, Oracle and IBM. In the ‘90s, Microsoft started building a user design team that now includes roughly 500 people, industry experts say.

NASA, which has faced cutbacks in recent years, has a human-computer interaction group that’s grown to 10 people since it was started in 2002. It recently worked with Google and the Firefox browser team on a new iteration of Firefox. NASA used its cognitive modeling tools--or computer algorithms that simulate how people will respond to new products--to help Firefox and Google develop more intuitive browser tabs.

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NASA’s Vera has also worked on new design for the Mars rover expedition, creating a better interface for scientists programming the daily activities of the rover. It used to take the scientists 90 minutes to plan the rover’s activities, but Vera’s design team cut the process down to just 10 minutes. Its latest design for the Phoenix rover, which will launch in July, cuts the routine time to three minutes, according to Vera.

Undergraduate and graduate computing programs are also answering the demand. [AnnaLee Saxenian](#), dean of the School of Information at the University of California at Berkeley, said in an interview late last year that the ubiquity of the Internet, along with the globalization of technology industry, has prompted the need for a new generation of engineers with broader skills. In recent years, Berkeley’s school began requiring engineering students to learn human-computer interaction skills.

“U.S. engineers need a broader training than simply programming and engineering. They increasingly need to have an understanding of working with multicultural teams

and being able to understand the social components of the products,” Saxenian said. “We believe those types of people will add the most value in the coming decades.”

[John Maeda](#), a computer scientist at MIT’s Media Lab, agrees there’s “a need for hybrid people, who can put together a mean car and pimp it out, too. This is the holy grail of this new generation. Schools are changing slowly to adopt this model of education.”

What is user design?

The fundamentals of user design boil down to understanding the capabilities, limitations and desires of humans. Dialog boxes that pop up on the desktop and then disappear before giving the person enough time to read them could be an example of bad user design.

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